JUL 16 1981

Docket Nos.: 50-387
and 50-388

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Bcc:
TERA
TIC
NSIC
NRC PDR
L PDR
ACRS(16)

NOTE TO: NRR Assistant Directors
B. Grimes
Donald Chapell
Joel Kramer

FROM: Robert L. Tedesco, Assistant Director for Licensing, DL

SUBJECT: FORTHCOMING ACRS MEETING ON SUSQUEHANNA STEAM ELECTRIC STATION, UNITS 1 AND 2, JULY 23, 1981.

The Susquehanna Steam Electric Station, Unit Nos. 1 and 2 SER was issued on April 10, 1981 and SER Supplement No. 1 was issued on July 7, 1981. The ACRS subcommittee meeting is scheduled for July 23, 1981 in Washington, D.C. In order to avoid delays in the Susquehanna schedule, substantive staff support at the meeting is necessary.

To make a good showing at the meeting, the staff should be prepared to address any questions from the applicant's presentation (shown in Enclosure 1) that the committee might be concern. The individual responsible is indicated in the enclosure. Your cooperation in meeting these objectives will be appreciated.

A special bus to H Street has been arranged and will be leaving at 7:45 am.

Robert L. Tedesco, Assistant Director
for Licensing
Division of Licensing

cc:
Darrell G. Eisenhut
Richard H. Vollmer
Roger Mattson
Thomas E. Murley
Robert F. Burnett

RECEIVED
JUL 17 1981
U.S. NUCLEAR REGULATORY COMMISSION

AUG 5 1981

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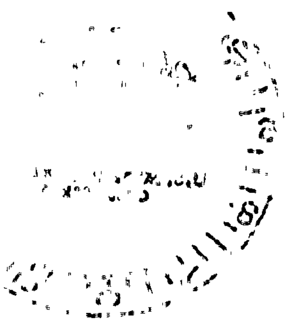
SURNAME	RStark:cz	ASchwencer	RTedesco				
DATE	7/15/81	7/ /81	7/15/81				

NRC FORM 318 (10/80) NRCM 0240 OFFICIAL RECORD COPY ☆ USGPO: 1980—329-824



TENTATIVE SCHEDULE
ACRS SUBCOMMITTEE MEETING ON SUSQUEHANNA NUCLEAR POWER STATION
WASHINGTON, DC
THURSDAY, JULY 23, 1981

APPROXIMATE TIME

I. INTRODUCTION

A. Subcommittee Opening Statement — 8:30 a.m.
W. Kerr, Chairman

B. NRC Staff Introduction — 8:35 a.m.
R. Stark

1. Overview of OL Review
2. Overview of SER Open Items

C. Pennsylvania Power & Light Co. Introduction — 9:00 a.m.

1. Site and Plant Description
2. Organization and Management Structure
3. Response to SER Open Items
4. Schedule for Completion of Licensing Review, Operator Training, Test Program, Fuel Load, and Commercial Operation Security Schedule

*********************** BREAK *********************** 10:10 a.m.

II. PENNSYLVANIA POWER & LIGHT COMPANY PRESENTATIONS AND NRC STAFF COMMENTS, SEVERAL SPECIFIC ISSUES

Allenspach

A. Management Structure and Technical Resources Compliance with NUREG-0731, etc. — 10:20 a.m.

B. Training and Qualification Program — 11:00 a.m.

Salah
Allenspach

1. Operator Training and Use of Onsite Simulator
2. Onsite Technical Support Personnel Training
3. Offsite Support Personnel Training

C. Plant Control Room — 11:40 a.m.

Ramey-Smith
Phillips
Mauck/Eost

1. Description of Advanced Control Room (ACR)
2. Human Factor Review
3. Control Room Instrumentation (Reg. Guide 1.97 and Inadequate Core Cooling Instrumentation)
4. Alternate Shutdown Panel

		APPROXIMATE TIME
	D. Emergency Planning	12:10 p.m.
Chestnut	1. Support Facilities 2. Status of Plan (Applicant, county, state plans, FEMA & PEMA reviews) 3. Status of Drill to Test Plan	
	************************ LUNCH ************************	12:30 p.m.
	E. Station Electrical Power	1:30 p.m.
Rhow	1. Loss of AC/Loss of DC (including DC system reliability) 2. Station Blackout Analysis	
	F. Decay Heat Removal Capability	2:30 p.m.
Collins	1. Normal Mode 2. Degraded Mode	
Slosson	G. Environment Qualification of Equipment	2:45 p.m.
	************************ BREAK ************************	3:00 p.m.
Rouse	H. Onsite Storage of Spent Fuel and Low-Level Waste, Capacity and Future Plans	3:10 p.m.
Collins/Hannon	I. Response to NRC Report on Hypothetical BWR Scram System Failures	3:25 p.m.
	J. Anticipated Transients Without Scram	3:40 p.m.
W. Kennedy	1. Plant Protection Measures 2. Operator Training and Procedures 3. Compliance with Propose d Rule	
	III. MARK II CONTAINMENT PROGRAM	4:00 p.m.
	A. Short-Term Modifications	
EHawlia	B. Long-Term Modifications	
	C. Hydrogen Control	

		APPROXIMATE TIME
SACRES/ GEMCS IV.	~~NRC STAFF~~ DISCUSSION OF ACRS QUESTIONS ON THE ENVIRONMENTAL IMPACT STATEMENT SUPPLEMENT	4:30 p.m.
V.	SUSQUEHANNA SECURITY SYSTEM	4:45 p.m.
	(NOTE: Portions of this Session may be Closed as necessary)	
Gaskin	A. Overall Program	
	B. Separation of Units 1 and 2	
VI.	SUBCOMMITTEE DISCUSSION (CAUCUS)	5:00 p.m.
VII.	INSTRUCTIONS TO APPLICANT AND NRC STAFF	5:15 p.m.
ADJOURNMENT		5:30 p.m.

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RECEIVED JUL 15 1981 U.S. NUCLEAR REGULATORY COMMISSION

MEMORANDUM FOR: Walter R. Butler, Chief
Containment Systems Branch, DSI

FROM: Robert J. Bosnak, Chief
Mechanical Engineering Branch, DE

SUBJECT: SUSQUEHANNA T-QUENCHER ARM BENDING MOMENT

REFERENCE: Memorandum from W. Butler to R. Bosnak dated June 10, 1981

In the above referenced memorandum CSB requested that MEB evaluate the applicant's justification for using a 65.1 KNm SRV air clearing bending moment in their design specification rather than the maximum 81.7 KNm bending moment as measured during the Karlstein test. The purpose of this memorandum is to summarize the MEB evaluation of the applicant's justification.

The applicant's justification is based on the assumption that the T-Quencher arm bending moment is used primarily for the evaluation of the T-Quencher body-to-arm weld. Furthermore, the evaluation of the weld considers additional loadings other than the bending moment. The applicant stated that the additional design specification loadings used in their calculations exceeded the corresponding extrapolated test values and that the overall stress calculation at the body/arm weld using design specification values is conservative.

The applicant has performed calculations using the rules of ASME Code Section III NC-3200*, including Appendix XIII and XIV. The calculations were performed for both the design specification and the extrapolated test data values. A summary of the stresses at the T-Quencher body-to-arm interface point is shown below.

Primary Stress $(P_L + P_B)$

Test Data	-	11.1 ksi
Design Spec	-	11.378 ksi
Upset Allowable	-	23.4 ksi $(1.65\ S_m)$

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*The T-Quencher is an ASME Code Class 3 component. However, the applicant has chosen to use the alternate Class 2 design rules of NC-3200, but has not committed to the additional special requirements of NC-3211.1(d). The Code requires that the special requirements shall be met when NC-3200 rules are used.

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Primary plus Secondary Stresses ($P_L + P_B + Q$)

Test Data	-	39.2 ksi
Design Spec	-	33.537 ksi
Upset Allowable	-	42.6 ksi (3 S_m)

As can be seen, the primary (membrane plus bending) stresses due to the total stresses from all associated loadings including pressure and other mechanical loads (e.g., weight, SRV and OBE) is greater for the design specification calculation than for the test data calculation. In addition, the total primary stresses for both the design specification and the test data calculation are less than one-half of the primary stress allowable for the upset condition. Thus, even if a higher bending moment were to be specified in the design specification calculation (i.e., 81.7 KNm vs. 65 KNm), it is not expected that the primary stress allowable would be exceeded.

For primary plus secondary stresses, the test data calculation exceeds the design specification calculation. The specific load combination producing the higher secondary, Q, stresses for the test data calculation is uncertain due to the complexity of the finite element analysis using Appendix XIII rules. In general, the secondary stresses are caused by both thermal stresses and bending stresses at gross structural discontinuities. Local yielding and minor distortions can satisfy the conditions which caused the stresses to occur. Failure is not expected to occur from a single application of the stress. Exceeding the 3 Sm limit on the range of primary plus secondary stresses is acceptable provided a simplified shakedown analysis is performed in accordance with XIII-1153. However, the primary plus secondary stresses for both the design specification and the test data calculations were less than the 3 Sm elastic limit.

In considering peak stresses, the applicant has performed fatigue evaluations for both design specification and test data values using Appendix XIV rules. The fatigue evaluation conservatively assumed that maximum design specification values would occur for 7000 valve actuations. The design specification bending moment used was 65 KNm. The average test databbending moment measured was 35 KNm, however, in only 3 cases out of 99, the test data bending moment exceeded the 65 KNm design specification bending moment with a maximum measured bending moment of 81.7 KNm. However, the governing stress in the fatigue evaluation was the thermal peak stress and not the mechanical bending moment. The thermal peak stress calculated from the design specification exceeded thermal peak stress calculated from test data values (93.37 ksi vs. 81.9 ksi, respectively). The resulting cumulative usage factor for the design specification calculation exceeded the test data usage factor (0.93 vs. 0.7) even though the test data usage factor was calculated assuming 7000 cycles of the maximum measured bending moment (81.7 KNm). Therefore, it is

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not expected that the larger bending moment from the test data would have a significant effect on the design specification fatigue usage factor and that the relatively few cases where the design specification bending moment is exceeded will not cause fatigue failure.

In summation, for the primary stresses, the design specification calculation resulted in stresses higher than the test data stresses. In both cases the primary stresses were less than one-half the stress allowable. For consideration of primary,secondary and peak stresses, the applicant has performed a conservative fatigue evaluation using maximum design specification values. For the few cases where the bending moment does exceed the design specification value, it is not expected that the higher bending moment will result in fatigue failure.

Therefore, based on our review of the applicant's stress report summary and contingent upon the applicant meeting the special requirements delineated in NB-3211.1(d), we find the Susquehanna load specification for the SRV air clearing bending moment acceptable for use in the design of the T-Quencher body-to-arm weld.

Robert J. Bosnak, Chief
Mechanical Engineering Branch
Division of Engineering

cc: J. Knight, DE
R. Tedesco, DL
L. Rubenstein, DSI
R. Stark, DL
H. Brammer, DE
F. Cherny, DE
S. Hou, DE
J. Kudrick, DSI
F. Eltawila, DSI
D. Terao, DE

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